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ABSTRACT

Data requirements for a comprehensive assessment of the educational status of women are evaluated. Issues concerning school personnel and women's educational development are considered. Postsecondary and elementary/secondary education are considered separately. Sex role stereotyping of teachers and administrators and numbers and ranking of men and women in academics are addressed. The federal government needs a mechanism for surveying recruitment and promotion of college faculty that provides data on faculty sex distributions by rank, longitudinal surveys of individual faculty members, and separate tabulations of newly-promoted and newly-hired faculty. Similar needs exist for elementary and secondary systems. Regular monitoring is needed of faculty pay scales among institutions differing in faculty sex composition. Analyses and dissemination of information on the sex composition of school administrators are needed. Monitoring of the educational status of women should address educational progress (degrees obtained), education experiences (characterisitcs of education programs), fields of study, and persistence rates. Annual surveys on the educational status of women should include 10- or 15-year trends in enrollments and degrees awarded for men and women. Information is presented on these trends. Factors influencing women's career development and low mathematics interests and skills at the elementary and secondary levels need to be explored. The current federal data collection methods of institutional surveys, informants, and self-reports are described. (SW)

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DATA PERTAINING TO THE EDUCATION OF WOMEN
A CHALLENGE TO THE FEDERAL GOVERNMENT

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Data Pertaining to the Education of Women: A Challenge to the Federal Government

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The federal government's role in the collection and dissemination of data concerning the education of women can be viewed from several perspectives. A comparatively narrow approach is simply to review current data collection and dissemination activities and make suggestions for improvements. A somewhat broader approach would be to identify some of the major issues concerning the education of women, and to evaluate public and private data gathering in light of these issues. In developing this paper I have opted for this broader perspective for several reasons. First, gaps or deficiencies in current federal efforts frequently reflect a rather limited conception of the major issues in women's education. Second, important problem areas are frequently overlooked because different federal agencies fail to coordinate their respective efforts. Finally, since federal activities are frequently duplicative of (or even competitive with) efforts in the private sector, a more efficacious use of limited federal funds requires a better understanding of the total national data picture.

The paper is organized into two major sections: Data requirements relating to school personnel, and data requirements relating to women's educational development. Within each of these two broader sections, postsecondary education and elementary and secondary education will be considered separately.

Academic Personnel

Since the professional persons who staff our schools and colleges frequently serve as role models for the students they serve, sex-role

stereotyping among teachers and administrators at different levels of education represents a potentially serious problem. The young girl's first experience with formal education--nursery school and kindergarten--typically exposes her to women rather than men teachers. As she moved up through the elementary grades, the proportion of male teachers increases, but these increases frequently occur disproportionately in traditionally "male" fields like science, mathematics, and technology. Additional increases in the proportions of male teachers occur in the secondary school years, although sex-stereotyping by field remains. At the collegiate level, women instructors are a distinct minority, and they tend to occupy the lower professorial ranks. School and college administrators at all levels are predominantly male, with the top positions at the most prestigious universities being occupied almost exclusively by men. Clearly, continuous assessment of the sex distribution of academic personnel at various levels ought to be a major federal priority.

Postsecondary Personnel

Issues pertaining to the sex of academic personnel at the postsecondary level have focused heavily on college faculties. With the exception of a few fields such as nursing and home economics, academic departments have traditionally been dominated by men. In those departments that employ relatively large proportions of women, the women tend to be concentrated disproportionately in the lower academic ranks and in non-ladder positions such as instructor, lecturer, and research associate. Although colleges have been subjected to a considerable amount of internal and external pressure to expand career opportunities for women via affirmative action efforts in recruitment, as yet no federal mechanism exists for monitoring changes in

sex composition of college faculty. Consequently, serious consideration should be given to the establishment in the federal government of a regular survey mechanism to monitor the recruitment and promotion of college faculty. The mechanism should be designed to produce tabulations of faculty sex distributions by rank.

The federal agency with prime responsibility for collecting educational data at the postsecondary level is the National Center for Educational Statistics (NCES). Their principal vehicle for collecting such information is the Higher Education General Information Survey (HEGIS), which annually surveys all accredited colleges and universities throughout the United States.

HEGIS has periodically obtained data concerning faculty salary levels. A more well established mechanism for assessing faculty salaries, however, is the annual salary survey of the American Association of University Professors (AAUP). Unfortunately, this survey does not report salary figures by sex, so the data cannot be used to assess the impact of affirmative action efforts. Until such a capability exists, the federal government should seriously consider assuming the burden of regularly surveying changes in the faculty compensation by sex.

A comprehensive analysis of issues relating to sexual equity on college faculties requires considerably more complex data than simple tabulations of men and women faculty by rank and by salary. Given that many college faculty are hired or promoted on the basis of specific performance indicators, a more definitive test of the existence of sex bias requires that one control for possible sex differences in prior qualifications. Three major studies of this issue (Carnegie Report, 1973; H. S. Astin and Bayer, 1972; Bayer and H. S. Astin, 1975) suggest sex differences in faculty

salaries cannot be attributed solely to background qualifications such as institutions of highest degree, field of study, and number of publications. Sophisticated research of this type provides much more convincing evidence of sex bias than mere tabulations of male and female faculty by rank and salary status. Data for such analyses have come from national surveys of individual faculty members funded by the federal government. Each survey, however, has been funded on an ad hoc basis; no permanent mechanism exists for reexamining these issues in the future. Surveying individual faculty members can, of course, be much more expensive than institutional surveys in which the institutions bear the burden of aggregating the relevant statistics. Nevertheless, given the many uses to which individual faculty survey data can be put, the federal government should give serious consideration to instituting periodic sample surveys of individual faculty members. If such surveys were longitudinal, it would be possible to follow changes in the status of individual faculty members and to examine such factors as promotion, acquisition of tenure, and faculty migration.

The obvious need for periodic surveys of college faculty raises a more general methodological issue concerning how survey data are tabulated. Federal agencies have traditionally assessed the progress of affirmative action efforts by reporting sex distributions of <u>all</u> members of the particular population (e.g., students, faculty) in question. As far as college faculties are concerned, such tabulations provide a relatively insensitive measure of the impact of affirmative action efforts. Given the realities of tenure and the fixed pay scales under which many college faculties operate, affirmative action efforts are most likely to have an impact on <u>new hires</u> and <u>promotions</u>. Thus, if a particular college has been unusually successful in hiring and promoting women faculty members, the

apparent effects of these efforts will be diluted if the tabulations combine newly hired and newly promoted faculty with incumbents. In short, it is strongly recommended that separate tabulations be provided for newly promoted and newly hired faculty. (A similar argument can be made on the matter of student enrollment tabulations; see below.)

A more subtle policy issue with respect to faculty pay concerns differences among institutions. Since women faculty are not equally distributed among different types of postsecondary institutions (H.S. Astin and Bayer, 1972), women may receive lower salaries in part because of where they work. In other words, do institutions that employ higher proportions of women faculty pay their faculties less? Are these differences the result of sex discrimination, or are other factors involved, such as the curricular emphasis or the degree of institutional selectivity or prestige? The potential importance of institutional differences can be illustrated simply: Assume that a higher educational system comprises only two institutions. Although one pays much higher salaries, both are scrupulously nondiscriminatory, so that men and women faculty within each are paid equally. If both institutions have equivalent ratios of men to women faculty, the differences in institutional pay scales are inconsequential as far as sex discrimination is concerned. However, if the institution with the lower salary scale employs proportionately more women than the one with the higher scale, a sex differential in salaries for the total system will occur. In short, even if individual institutions do not practice sex discrimination, institutional differences in pay scales can produce de facto differences in faculty pay based on sex. A recent analysis which combined AAUP salary data with HEGIS data (Cox and Astin, 1977) suggests that there are substantial pay differences related to the sex ratio of the faculty. Multivariate

analyses that control other institutional factors do not eliminate these pay differences. These results suggest the need for regular monitoring of faculty pay scales among institutions with faculties differing in sex composition.

The vigorous affirmative action efforts that have been directed at college faculties have tended to obscure what may be a much more critical problem: The poor representation of women in college administrations. Even though many top administrative posts that were formerly filled on an informal basis are now openly advertised and presumably open to any applicant, a casual look at the makeup of most college administrations reveals that this is still a male-dominated field. As of May 1977, only about one percent of all presidents at four-year colleges and public and private universities were women. Of the three women presidents (out of 309 surveyed), two presided over institutions that formerly were exclusively or primarily for women. Until the recent appointment of a woman president of the University of Chicago, none of the 65 private universities in the United States had been headed by a woman.

Do these data constitute evidence of outright sex discrimination in the recruitment of college and university presidents? Although it is difficult to provide a definitive answer to this question, given the complex and somewhat unpredictable nature of the recruitment process for administrators, a partial answer may lie in the pool of candidates from whom college presidents are usually selected. Although presidential candidates may come from a variety of positions, the most frequent steps on the academic administration career ladder are probably the chief academic officer and the dean of the college of arts and sciences. Aspirants to college presidencies are frequently advised to seek either of these posts as a step toward their

ultimate goal. An analysis of HEGIS data on the sex of college administrators (Astin, 1977a) shows clearly that women are grossly underrepresented in these two positions. Since high level academic administrators are typically chosen from the ranks of faculty, one might expect to find proportionate representations of women in such positions. However, if one uses the percentage of women on the faculty as a guide women are underrepresented as chief academic officers by a factor of 10 to 1 in two-year colleges and by a factor of more than 20 to 1 in public four-year colleges.

One consequence of sex discrimination in hiring top administrators is that students of both sexes who enter college for the first time are exposed to a male-dominated and male-oriented administration. The absence of women in top administration can create an environment that lacks not only role models for women who might ultimately become administrators, but also the unique perspective that women might bring to the varied tasks of administering a college. A further analysis of HEGIS data on college enrollments (Astin, 1977a) indicates that 19 out of every new college freshmen attend an institution in which the top two administrators are men.

An examination of the sex composition of lower level administrators, again relying on HEGIS data, shows somewhat higher proportions of women, although the proportion in any particular position appears to be inversely related to the status of that position as revealed in median salary levels. Thus, 7 of the 8 lowest-paying nonacademic administrative positions include the highest proportion of women incumbents (more than 15 percent), whereas all of the six highest-paying positions have fewer than 15 percent women (Astin, 1977a).

These findings make it clear that statistics on women in administrative positions can be very misleading unless the <u>specific position</u> is

identified and separate tabulations are provided by position. A simple tabulation of sex ratios for "administrators" would be of very little use in assessing progress toward affirmative action goals. Further, separate tabulations should be provided for newly hired administrators.

Why are women so underrepresented in top administrative posts? Several factors are probably operative: Traditionally, search committees for top positions in academic administration are dominated by older male faculty members, many of whom are unlikely to take any woman candidate seriously. At the same time, many talented women faculty members may not have devoted the same effort as their male colleagues to making themselves visible to search committees. Still another potential obstacle is the criteria used for selection. Most search committees give considerable weight to prior administrative experience or even "high level" administrative experience. Since many potential women candidates lack such experience, they may not be considered seriously by committees or, if such criteria are included in the position announcement, may never become candidates in the first place.

These issues underscore the need for continuing NCES data collection efforts related to the sex of college administrators. Assuming that NCES sustains its commitment in this area, the problem of appropriate analysis of data still remains. We cannot assume that the initiative will be taken by some outside organization without federal sponsorship or support. In other words, continuing to collect data on the sex composition of college administrations is not enough: The federal government should also support analyses and dissemination of results. In this regard, special attention should be given to tabulating sex distributions in those administrative positions that normally lead to top administrative posts in academic institutions.

Elementary and Secondary School Personnel

Affirmative action efforts directed at elementary and secondary school personnel have been much less visible than those directed at post-secondary personnel. There are probably several reasons for this discrepancy. To begin with, elementary and secondary faculties include much larger proportions of women than do postsecondary faculties. Further, hiring practices for new school teachers are generally more public and therefore less susceptible to the influence of sex bias on the part of the persons doing the hiring. Finally, the hiring and promotion of school teachers is more often based on experience and seniority than on individual judgments made by teams of peers.

These observations are not meant to suggest that no problem of sexual equity exists in the hiring of school teachers. Indeed, a recent longitudinal study of new college graduates taking jobs as school teachers immediately after completing the baccaulareate provides strong evidence of possible sex bias (Astin, 1977b). After controlling for students' personal background (ability, family income, education) and educational experience (undergraduate grades, type of college attended), women take jobs in school teaching that pay approximately $1,100 less than the jobs taken by men. Why women should receive lower salaries than men with comparable characteristics is not entirely clear. One explanation is outright sex discrimination: Businesses and schools may be less willing to pay women comparable salaries. Another possibility is that women may be more willing to settle for lower salaries, particularly if their mobility is restricted by their husbands' careers. Or, women may seek lower paying jobs. (Men, for example, may be more likely to seek teaching jobs in the higher paying schools--secondary versus elementary, for example). Whatever the explanation, this large discrepancy in the

starting salaries of women and men merits much more intensive study to assess the relative importance of motivation, sex discrimination, and other factors.

These results suggest the need to focus federal attention on the issue of hiring and promoting school teachers. Monitoring the sex composition of newly hired school teachers would not be sufficient. Rather, what is needed is much more intensive individual data on newly hired or newly promoted teachers to assess the possible presence of sex bias. These data, which would ideally be obtained on a regular basis, could involve a sampling of newly hired teachers which would include intensive background and interview data. The sample need not be especially large, although the data collection should be designed so that various alternative explanations of salary differences can be tested.

Very little is currently known about the sex composition of secondary school administrators and superintendents, and even less is known about the factors influencing the selection of persons for such positions. One's superficial impression is that men occupy administrative positions in elementary and secondary education far in excess of their representation in the ranks of the school teachers. In certain respects, the situation here parallels that for postsecondary education, although much less is known about the sex of persons occupying various types of administrative positions in elementary and secondary schools. Under these circumstances, it would be useful to initiate periodic sample surveys of elementary and secondary school administrators. NCES appears to be the most appropriate agency to undertake such surveys.

Women's Educational Development

Data requirements for a comprehensive assessment of the educational status of women are far more complex than requirements for monitoring affirmative action efforts with academic personnel. Such data needs to address at least two issues: women's educational progress (e.g., degrees obtained), and women's educational experiences (e.g., characteristics of educational programs).

Critical policy issues in the postsecondary educational development of women include the flows of women into the postsecondary system, women's undergraduate and graduate fields of study, levels of education attained (highest degrees), persistence rates, recurrent and continuing education, and the quality of postsecondary educational experiences.

Information on the flows of women through the educational system is important for several reasons. First, women have traditionally been underrepresented among entering college freshmen, in spite of their superior academic performance in secondary school. In recent years, however, postsecondary access rates for women have increased while those for men have decreased slightly. Postsecondary education is, of course, a critical factor in later occupational attainment (Jencks, et al., 1972). Second, women have traditionally been underrepresented in fields of study that normally lead to high-level and high-paying careers in scientific research, law, medicine, and business. Increased enrollments of women in majors leading to such occupations would presumably constitute evidence that career opportunities for women are expanding.

Postsecondary Development

The federal government has already established substantial data collection capabilities in the area of women's postsecondary educational

development. These mechanisms include the HEGIS of NCES and the October ("education") Current Population Survey (CPS) of the Census Bureau. NCES's Opening Fall Enrollment and Earned Degrees report detailed tabulations, by sex, of enrollments in different types of institutions and of fields in which various undergraduate and graduate degrees are awarded. However, for purposes of monitoring the postsecondary educational progress of women several changes in the format in these publications would seem to be warranted. Specifically, it would be useful if the annual reports of these surveys included 10 or 15 year trends in enrollments and degrees awarded separately for men and women. Fall enrollment figures would be especially useful if such trends were reported for first-time, full-time students. To provide approximations to access rates, it might be useful to express such figures as a percentage of the total number of male and female high school graduates of the same year. Another useful change would be to aggregate the data on specific degree fields into somewhat broader categories (arts, humanities, social sciences, natural sciences, and so forth). Annual trend analyses of these more aggregated fields would provide a much simpler means for assessing trends in women's field of study. A final suggestion would be to aggregate enrollment and degree data by quality of institution. Since women have traditionally been concentrated in the institutions of lesser prestige and quality (as measured, for example, by the "selectivity" or average academic ability of the entering class), an increase in postsecondary access rates for women would have a different meaning if that increase were limited primarily to institutions of lower quality.

NCES has recently been attempting to collect information on undergraduate enrollments by field of study. The principal obstacle to such efforts in the fact that many institutions do not require students to declare majors until

their second or third undergraduate year. However, our experience at UCLA with twelve years of sample surveys of individual freshmen (Astin, King, and Richardson, 1977) indicates that 95 percent of the freshmen are able to declare a probable major at the time of matriculation. Although more than half of these students will end up in a different major, the changes from probable to final major are highly systematic such that, in the aggregate, the final distribution of majors can be estimated with some precision from the earlier distribution of probable majors (Astin and Panos, 1969).

Consecutive surveys of entering freshmen from the Cooperative Institutional Research Program (CIRP) show dramatic changes in the career plans and degree plans of women entering college. Since the late 1960s, women have shown a steadily increasing interest in four occupations traditionally dominated by men: business, medicine, engineering, and law. Men's interest in these same occupations has either remained stable or declined slightly during the same period of time. Ten years ago, women accounted for only one in nine students planning to enter these four occupations; by 1977, they accounted for more than one in three. The increase began in 1969 and 1970, about the same time that the woman's movement gained momentum. These increases are still accelerating. In just eight years since 1969, they have been impressive in all four fields; the percentage of entering women freshman planning to enter business has tripled (from 4 percent to 12 percent), the percentage planning to become doctors has more than doubled (from 1.3 percent to 3.3 percent), the percentage planning to become lawyers has more than tripled (from .8 percent to 3.0 percent), and the percentage planning to become engineers has increased five-fold (from .3 percent to 1.5 percent).

Although followup studies indicate that women are somewhat more likely than men to drop out of these fields during the undergraduate years (Astin,

1977b; Astin and Panos, 1969), these dramatic changes in career preferences of entering college women may ultimately have a profound effect on the labor force in general and on these four professions in particular. Increasing the number of women lawyers will, in addition, expand the base of women candidates qualified for public office and the judiciary.

The usefulness of the CIRP data as a kind of "social indicator" that assesses societal changes in the aspirations and roles of women suggests that a federal survey mechanism for monitoring flows of women newly entering different postsecondary levels (freshmen, graduate, and so forth) would be extremely useful. Having detailed survey data on individual students, in addition, would make possible a great many more sophisticated analyses than are possible when information is collected from institutions in the aggregate. (This point will be discussed in more detail in the concluding section of the paper.)

Perhaps the best mechanism for monitoring women's <u>access</u> to postsecondary education is the October CPS of the Census Bureau. Although some very useful trend information on postsecondary access has recently been released by the Census Bureau (Suter, 1977), the analytic capabilities of the CPS data have not yet been fully exploited. One very useful tabulation, for example, would show trends in <u>first-time</u> entering students among new high school graduates. Since family income may be a more important determinant of postsecondary access among women than among men (Astin, Harway, and McNamara, 1976), it would be especially useful if such tabulations could be performed separately by family income level. The relatively small size of the CPS sample, however, obviously limits the number of such breakdowns that are possible.

There is currently very little federal capability to monitor trends

in women's postsecondary programs and experiences. Nevertheless, the annual HEGIS survey would be a useful mechanism for collecting such information. It would be useful, for example, to monitor changes in the number of institutions offering programs in women's studies and possibly in the enrollments of men and women in women's studies courses. HEGIS could also be used to collect information on the number, size, and scope of women's centers, gynecological facilities, and day-care centers.

Many of the most critical issues concerning the postsecondary educational development of women can be resolved only through longitudinal data. NCES has, of course, conducted the National Longitudinal Study (NLS) and is planning a similar study to begin in 1980. Since these surveys are focused on the secondary rather than postsecondary level, the usefulness of the data for studying postsecondary education is somewhat limited. If a regular federal capability for longitudinal studies at the postsecondary level were instituted, it would be possible to study more complex issues such as the impact of financial aid programs and the effectiveness of guidance and counseling.

Elementary and Secondary Development

Federal capabilities for monitoring the educational development of women is much more limited at the elementary and secondary levels than it is at the postsecondary level. Of the many educational problems and challenges confronting girls of elementary or secondary age, few are as significant as the development of interest and skill in mathematics. Nationally standardized tests show clearly that, by the time they reach the secondary level, girls are performing substantially below boys in mathematical achievement. This relatively low level of performance no doubt conditions the young woman's subsequent education and career development: It affects

decisions about whether or not to attend college, which types of college to attend, what courses of study to undertake, and, ultimately, what career to pursue. Closely associated with mathematical skills is the development of interest in science and technology. Although somewhat larger proportions of women these days appear to be pursuing postsecondary work in science and technology, their representation in these fields is still far below that of men.

From a broader perspective, furthering the educational development of women requires a greater understanding of the factors that influence skill development in many different fields. What early developmental experiences contribute to the development of particular interests and skills in the preschool girl? How does the development of particular skills influence the young woman's self-concept? Although these are clearly questions of critical concern to women's educational development, it is not clear just what the federal government's role in monitoring these developmental trends should be. An adequate exploration of these questions would clearly involve longitudinal studies beginning at an early point, perhaps in the preschool years. Should the federal government consider establishing regular sample surveys of different age cohorts? Which agencies should carry the main responsibility for conducting such research? How is the funding for such activities to be secured? Although these policy questions are too complex to explore in this paper, the importance of these developmental issues suggests that agencies of the federal government should give serious consideration to the establishment of regular surveys of educational development across a spectrum of ages.

Various federal agencies have periodically conducted sample surveys of elementary and secondary school programs and policies, although no regular

survey mechanism of this type has yet been established. It would be important, for example, to assess trends in the type and amount of guidance and counseling provided to students in the elementary and secondary grades. Are young girls steered away from traditionally "masculine" fields and into traditionally "feminine" courses? What kinds of career advice do young women receive as they begin to plan for their postsecondary education? What kinds of information about financial aid opportunities do they receive?*

Techniques of Data Collection

This paper has suggested a number of areas in which federal data gathering activities could be modified or expanded so as to provide more useful information concerning the educational development of women. If the federal government decided to move in any of the directions suggested in this paper, serious consideration should be given to the issue of how statistical data are collected. An analysis of current data collection activities suggests that there are three basically different methods of data collection currently being used by the federal government: institutional surveys, informants, and self-reports. Each method has advantages and disadvantages.

Institutional Surveys

The method most commonly used by NCES to collect educational data involves asking institutions to provide summary tabulations of particular data. This method permits one to design an institutional sample and, presumably, to collect data reflecting the status of all enrolled students.

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*A recent NCES-supported review of the literature in sex discrimination in access to postsecondary education (Astin, Harway, and McNamara, 1976), shows that high school girls are more likely than boys to perceive the costs of postsecondary education as a barrier.

The major difficulty with the method, of course, is that it relies on the individual skills and conscientiousness of those institutional personnel who bear the responsibility for supplying the aggregated information. It is thus difficult to verify the accuracy of the data provided. Institutions use highly diverse methods to collect data, and it is difficult to assess the accuracy of certain methods. Institutional surveys are, however, a relatively inexpensive way to obtain a great deal of aggregated information from a sample or population of institutions.

Informants

The CPS of the Bureau of the Census relies on informants to provide information about the sampled households. While this method has the advantage of permitting direct interaction between the data collector and the respondent, it has several potential disadvantages. The method assumes that the informant has sufficient information about the educational status of those household member(s) in question, such as enrollment status (full-time, part-time, or dropped out) and the type of institution (public or private, proprietary or traditional, and so forth). The household informant method also runs the risk that certain classes of respondents (low income persons, for example) may be inclined systematically to exaggerate the enrollment status (from part-time to full-time) or type of institution (from trade school to college) of the person in question. The informant may also be unaware that the student in question has recently dropped out or changed status.

Self-Reports

The National Longitudinal Study and several other federally-supported surveys have relied upon sample surveys in which the respondent provides information about himself or herself in a questionnaire or interview. Our

experience with surveys of more than 4 million individual entering college freshmen suggests that self-reports tend to be accurate, particularly with respect to factual information. The major issues with such surveys are the high cost and the nonrespondents.

Followup surveys mailed to individual respondents are particularly subject to systematic biases in terms of who responds. Response rates, for example, are substantially lower among racial minorities than among students in general. Furthermore, persons who have dropped out of formal education are much less likely to respond than persisters. Nevertheless, if baseline data on respondents and nonrespondents are available, it is possible to adjust for nonresponse bias through sophisticated differential weighting of respondents (Astin and Molm, 1972).

Perhaps the main advantage of data collected through individual self-reports is the analytic versatility and flexibility that such data provide. In contrast to aggregated data obtained from institutional surveys, individual self-report surveys make it possible to relate any variable to any other variable at the individual level of analysis. The investigator is thus provided with infinite flexibility in data analysis and presentation of results. The usefulness of such data sets is well documented by the many policy studies that have already been carried out with the National Longitudinal Study database.

Conclusions and Recommendations

1. Given the complexity and scope of issues pertaining to the educational development of women, some permanent structure within the federal government should be established to insure that the government's data collection and analysis efforts confront these issues. This advisory body should comprise persons who are knowledgeable about issues in women's education and

who are familiar with prior research and with existing public and private data collection activities. A possible locus for this advisory group would be the Office of the Secretary of Health, Education and Welfare. Such a locus would have the advantage of covering many of the major federal data collection activities (NCES, National Center for Health Statistics, NIE, USOE, FIPSE, and so forth), but it has the disadvantage of excluding the Bureau of the Census, the Bureau of Labor Statistics, and other non-HEW agencies. Wherever it might be located, such a group should attempt to

a. Delineate the major policy issues concerning the educational development of women,

b. Assess the effectiveness of current federal data collection and analysis activities with respect to these issues; and

c. Recommend changes in federal efforts to deal more adequately with key issues.

2. Earlier sections of this paper propose a number of specific recommendations and suggestions for modifications in existing federal data activities and for possible new efforts. To implement most of these suggestions would require substantial increases in the current funding levels for the agencies involved (NCES, in particular). Any new longitudinal surveys would involve particularly large cost increases, although the potential payoff from such surveys suggests that serious consideration should be given to securing the needed funds.

3. Tabulations of data currently being collected by various federal agencies would provide better benchmarks for assessing changes in women's educational development if (a) separate tabulations were done for <u>new entrants</u> into various levels of education and (b) time trend analyses based on earlier survey years were routinely made available.

4. Gaps in knowledge about factors influencing women's career development are particularly severe in the preschool and elementary school years. Small sample surveys, conducted at regular intervals and covering different age cohorts, would provide an empirical basis for exploring critical issues concerning the early educational development of women. Such surveys might be done collaboratively with NCES and the National Center for Health Statistics.

5. The number and diversity of federal data collection efforts suggests the need for greater coordination and planning at higher federal levels. A number of major federal agencies--Census, NCES, BLS, and NCHS--are currently involved in primary data collection and analysis efforts that produce information relating to women's educational development. However, a number of other federal agencies frequently support research and evaluation studies that yield other critical data bearing on these same issues. Among the agencies that fund a substantial amount of such research are USOE, NSF, NIH, NICHD, NIMH, FIPSE, and NIE. These agencies have not only supported the collection of primary data sets, but they have also provided a considerable amount of support for analyses of existing data sets in both the public and private sector. At the current time, no mechanism exists for monitoring and coordinating these various activities. More important, there is currently no mechanism for monitoring these activities from the perspective of women's educational development. Clearly, some such mechanism is needed before any coherent federal plan can be developed.

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